

REMARKS

Claims 1-14 are pending herein. Claims 15-20 are withdrawn from further consideration pursuant to 37 C.F.R. §1.142(b). By this Amendment, the specification is amended.

The amendments to the specification do not introduce new matter. The amendments merely provide a generic term for a particle size analyzing apparatus as exemplified by COULTER COUNTERs and correct the indication of trademarks. No new matter is introduced.

The attached Appendix includes marked-up copies of each rewritten paragraph (37 C.F.R. §1.121(b)(1)(iii)).

Objection Under 35 U.S.C. §132

The Office Action objects to the Amendment filed on December 12, 2002 under 35 U.S.C. §132 as introducing new matter. Applicants respectfully traverse this objection.

The Office Action identifies as new matter the replacement paragraph at page 5, line 19, of the specification. That paragraph states that the parameter "n represents a number of particles in a channel of a particle size analyzing apparatus that uses the coulter principle, such as a COULTER COUNTER." Office Action, pp. 4-5. The Office Action goes on to state that the originally filed specification does not provide antecedent basis for the amended definition of parameter n. The Office Action also notes that COULTER COUNTER is a trademark. There is no evidence, according to the Office Action, showing that the originally disclosed "Coulter counter" is a particle sizing apparatus that uses the Coulter principle as disclosed in the replacement paragraph as filed. In addition, the Office Action states that there is not any indication on the record that "the Coulter principle" is a term of art.

However, a "Coulter counter" is a generic term for a particle size analyzing apparatus that can be used to measure the average particle diameter of resin particles. See, e.g., Matsumura et al. (U.S. Patent No. 5,910,389) ("Matsumura 389"), col. 6, ll. 11-24. Further,

U.S. Patent No. 4,826,747 to Chiba et al. ("Chiba"), attached, discloses that "the particle size distribution of the toner particles and carrier particles can be measured by a Coulter counter which is commercially available from Coulter Electronics Co., Ltd. in the United States, based on the electric resistance method called the "Coulter Principle". Chiba, col. 5, lines 35-42 (emphasis added). Thus, Applicants respectfully submit that, although COULTER COUNTER is a trademark, the meaning of the term "COULTER COUNTER" is well known in the art as "a particle size analyzing apparatus that uses the Coulter principle" and that the meaning of the term "Coulter Principle" is equally well known.

Accordingly, reconsideration and withdrawal of the objection are respectfully requested.

Objection to the Specification

The Office Action objects to the specification for the improper use of trademarks. Applicants have reviewed and amended the specification to correctly indicate trademarks, when they are used in the specification. In view of the corrections to the specification, Applicants submit that the objection should be withdrawn. Reconsideration and withdrawal of the objection are respectfully requested.

Rejection Under 35 U.S.C. §112, Second Paragraph

The Office Action rejects claims 5, 6 and 13 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. The Office Action also rejects claims 5, 6 and 13 under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. Because these rejections are related, they are addressed together. Applicants respectfully traverse these rejections.

Specifically, claims 5 and 6 are considered indefinite because the parameters "n" and "R" are defined as representing "a number of particles in a channel" and "a channel particle diameter" in "a particle size analyzing apparatus, which utilizes the Coulter principle."

Office Action, p. 7. Claim 13 is considered indefinite because the surface property index is determined by the trademark COULTER COUNTER. Id.

As discussed above, one skilled in the art would know, at least from the disclosure of Chiba, the meanings of the terms "Coulter Counter" and "Coulter Principle", and that a "Coulter Counter is a particle size analyzing apparatus using the Coulter Principle". See Chiba, col. 5, lines 35-42. So, while COULTER COUNTER is a trademark, a "Coulter counter" is a generic term used in the art to describe a particle size analyzing apparatus using the Coulter principle. See, e.g., Matsumura 389, col. 6, ll. 11-24. Likewise, the "Coulter principle" is known in the art as a method of analyzing particle size.

In view of the above remarks, this rejection should be withdrawn. Reconsideration and withdrawal of the rejection are respectfully requested.

Rejections Under 35 U.S.C. §§102, 103

Matsumura et al. (U.S. Patent No. 6,022,662)

The Office Action rejects claims 1-6 and 8-14 under 35 U.S.C. §102(b) as anticipated by, or in the alternative, under 35 U.S.C. §103(a) as obvious over U.S. Patent No. 6,022,662 to Matsumura et al. ("Matsumura 662"), combined with the statements made in the specification. Applicants respectfully traverse these rejections.

Claims 1-4 and 8-11 are drawn to, in pertinent part, a toner for developing an electrostatic image comprising a resin, a colorant and a releasing agent, wherein the toner has protrusions having a height of approximately 0.05 μm to 2 μm on the surface thereof; claims 5 and 6 are drawn to toner particles having a surface property index of 2.0 or less (measured under the condition of the toner without external additive); and claims 12-14 are drawn to a developer comprising in pertinent part, a toner having protrusions having a height of

approximately 0.05 μm to 2 μm on the surface thereof. Matsumura 662 does not disclose, teach or suggest such toner particles.

As explained in the attached Declaration Under 37 C.F.R. §1.132, the toner particles of Matsumura 662 differ from those of the invention of claims 1-6 and 8-14 at least because the toner particles of Matsumura 662 do not have wax protrusions on the surface, and the toner particles of the invention of claims 1-4 and 8-14 have protrusions approximately 0.05 μm to 2 μm high on the surface of the toner particles. Further, the toner particles of claims 5 and 6 have surface property indices of approximately 2.0 or less, which is different from the toner particles of Matsumura 662. These differences in the toner particles are due in part to the differences in the amount of wax, the fusing time, and the fusing temperature between the invention of claims 1-6 and 8-14 and Matsumura 662. These conditions, as is explained in the attached Declaration, affect the wax protrusions on the surface of the toner particles. The toner particles of claims 1-6 and 8-14 have protrusions approximately 0.05 μm to 2 μm high on the surface of the toner particles. The Matsumura 662 particles do not have protrusions.

In addition to the amount of wax, the fusing time and the fusing temperature, the existence of protrusions on the surface of toner particles is affected by the means for stabilizing aggregated particles. In Matsumura 662, an anion interfacial active agent, which adheres to the surface of the particles in water, is used as the means for stabilizing the aggregated particles. Since the anion interfacial active agent is tightly packed and hardens, it is difficult to deform the surface of the particles. Thus, it is difficult to form protrusions of the wax on the surface of the toner, even if fusing and integration is conducted at high temperatures. That is, it is difficult to cause migration of the wax, with the result that the height of protrusions on the surface of the Matsumura 662 toner particles is 0 μm . However, addition of sodium hydroxide, as described in the present specification, does not prevent the wax from migrating because a leaving group on the surface of the particles performs the

stabilization of the aggregates. Thus, the toner particles of claims 1-6 and 8-14 have protrusions that range in height from approximately 0.05 μm to 2 μm .

Because Matsumura 662 does not disclose toner particles as described in claims 1-6 and 8-14, the invention of claims 1-6 and 8-14 are not anticipated by Matsumura 662. Further, the invention of claims 1-6 and 8-14 would not have been obvious over Matsumura 662, alone or in combination with statements in the instant specification.

For the reasons discussed above, Matsumura 662 does not disclose, teach or suggest the invention of claims 1-6 and 8-14. There is no motivation in Matsumura 662 to modify the amount of wax, the fusing time, the fusing temperature or the means for stabilizing aggregated particles to form different toner particles corresponding to the toner particles of claims 1-6 and 8-14. Matsumura 662 alone would not have rendered the invention of claims 1-6 and 8-14 obvious.

The cited statements in the instant specification do not remedy the shortcomings of Matsumura 662. As discussed above, the particles of Matsumura 662 are, in fact, different from those of the claimed invention.

For at least these reasons, Applicants submit that claims 1-6 and 8-14 are not anticipated by, nor would the claims have been obvious over, the cited reference. Reconsideration and withdrawal of the rejections are respectfully requested.

Matsumura et al. (U.S. Patent No. 5,910,389)

Claims 1-14 are rejected under 35 U.S.C. §102(b) as anticipated by, or in the alternative, under 35 U.S.C. §103(a) as obvious over Matsumura 389, combined with the statements made in the specification. Applicants respectfully traverse these rejections.

For the same reasons as discussed above with respect to Matsumura 662, Matsumura 389 does not anticipate claims 1-14

Further, the invention of claims 1-14 would not have been obvious over Matsumura 389, alone or in combination with statements in the instant specification.

For the same reasons as discussed above, Matsumura 389 does not disclose, teach or suggest the invention of claims 1-14. There is no motivation in Matsumura 389 to modify the amount of wax, the fusing time, the fusing temperature or the means for stabilizing aggregated particles. Matsumura 389 alone would not have rendered the invention of claims 1-14 obvious.

And, for the reasons discussed above, the cited statements in the instant specification do not remedy the shortcomings of Matsumura 389. As discussed above, the particles of Matsumura 389 are, in fact, different from those of the claimed invention.

For at least these reasons, Applicants submit that claims 1-14 are not anticipated by, nor would the claims have been obvious over, Matsumura 389. Reconsideration and withdrawal of the rejections are respectfully requested.

Maehata et al. (U.S. Patent No. 6,163,346)

Claims 1-6 and 8-14 are rejected under 35 U.S.C. §102(b) as anticipated by, or in the alternative, under 35 U.S.C. §103(a) as obvious over Maehata, combined with the statements made in the specification. Applicants respectfully traverse these rejections.

Claims 1-4 and 8-11 are drawn to, in pertinent part, a toner for developing an electrostatic image comprising a resin, a colorant and a releasing agent, wherein the toner has protrusions having a height of approximately 0.05 μm to 2 μm on the surface thereof; claims 5 and 6 are drawn to toner particles having a surface property index of 2.0 or less (measured under the condition of the toner without external additive); and claims 12-14 are drawn to a developer comprising in pertinent part, a toner having protrusions having a height of approximately 0.05 μm to 2 μm on the surface thereof. Maehata does not disclose, teach or suggest such toner particles.

As explained in the attached Declaration Under 37 C.F.R. §1.132, the toner particles of Maehata differ from those of the invention of claims 1-6 and 8-14 at least because the toner particles of Maehata do not have wax protrusions on the surface, and the toner particles

of the invention of claims 1-6 and 8-14 have protrusions approximately 0.05 μm to 2 μm high on the surface of the toner particles. These differences in the toner particles are due in part to the differences in the amount of wax and the fusing time between the invention of claims 1-6 and 8-14 and Maehata. These conditions, as is explained in the Declaration, affect the wax protrusions on the surface of the toner particles. The toner particles of claims 1-6 and 8-14 have protrusions approximately 0.05 μm to 2 μm high on the surface of the toner particles. The Maehata particles do not have protrusions.

Specifically, these differences have an impact on a shape of wax protrusion. Where the amount of wax is relatively large, as described in the specification, it is easier to increase a domain size of the wax in a toner. In addition, it is easy to cause migration of the wax domain to the surface of the toner when the fusing-and-integration time is long. Accordingly, protrusions form on the surface of the toner.

In contrast, in Example 2 of Maehata, the amount of wax is relatively smaller than described in the present specification, and the fusing-and-integration time is shorter. Accordingly, the height of the protrusions on the surface of the toner particles is 0 μm . Thus, the toner particles of Maehata differ from the toner particles of the claimed invention, which have protrusions on the surface with heights in the range of approximately 0.05 μm to 2 μm .

And, for the reasons discussed above, the cited statements in the instant specification do not remedy the shortcomings of Maehata. As discussed above, the particles of Maehata are, in fact, different from those of the claimed invention.

For at least these reasons, Applicants submit that claims 1-14 are not anticipated by, nor would have been obvious over, Maehata. Reconsideration and withdrawal of the rejection are respectfully requested.

Conclusion

In view of the foregoing amendments and remarks, Applicants submit that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the application are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in better condition for allowance, the Examiner is invited to contact Applicants' undersigned representative at the telephone number set forth below.

Respectfully submitted,



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Attachments:

Declaration Under 37 C.F.R §1.132
U.S. Patent No. 4,826,747 to Chiba et al.

Date: May 27, 2003

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